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TAXONOMIC STUDIES ON APHODIINAE

X. REVISION OF SUBGENUS *LOBOPARIUS* A. SCHMIDT,
WITH DESCRIPTION OF A NEW SPECIES

(COLEOPTERA SCARABAEIDAE)

In studying a small series of *Loboparius* from Nepal, some difficulties arose in the identification of species. It was therefore necessary to clear up taxonomy within the subgenus by examining all type specimens which could be traced. A new species from Burma, found in the collections of the Museum of Genoa, is also described.

According to the few specimens submitted for study from important collections, *Aphodius globulus*, described by HAROLD in 1859 from China, seems to be a rather rare species. Since the type cannot be found in Oberthür's collection (PAULIAN 1945: 158) I labelled neotype of this species the female specimen from Hong-Kong, preserved in Zoologische Staatssammlung of München. It bears HAROLD's autographic identification label and it is probably a syntype. I also studied the holotype of *Aphodius bisectus* Waterhouse (1875: 80) described from Japan and preserved in the British Museum (Nat. Hist.) in London. It is without doubt a male specimen of *globulus*, rather bigger and darker than average, and it must be probably considered only a colour variation of the same species.

The taxonomy and nomenclature of *Aphodius immarginatus* A. Schmidt have presented the most difficult problem in the subgenus *Loboparius*. The species was described by FAIRMAIRE (1893: 105) as *Ammoecius crassulus*. A. SCHMIDT (1907: 201) considering *Ammoecius* as a subgenus of *Aphodius*, ascertained that the name *crassulus* proposed by FAIRMAIRE was preoccupied by *crassulus* Horn (1870:118). He thus

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named the species *immarginatus* maintaining it among *Ammoecius* (1922: 72) though uncertainly and not including it in his dicotomical key. BOUCOMONT (1921: 62) considered *immarginatus* a synonym of *bisectus* (= *globulus* Har., ab.) giving it an interpretation not in agreement with the characters of WATERHOUSE's type but agreeing well with those of *immarginatus*. BOUCOMONT's treatment was followed by all successive revisers. This author described at the same time *Aphodius vitalisi* (1921: 62), of which the type is identical with *immarginatus*. Its 'variety' *cordieri* (1921: 63) has taxonomic patterns that could be considered of subspecific value. *Aphodius malabaricus* Petrovitz (1962: 107) is very closely related to *cordieri* and although it does not possess important anatomical differences from *immarginatus*, it could be taken as a subspecific form spread at the southern limit of dispersal of the nominal form. Subspecific rank may also be ascribed to *Aphodius kumaoensis* Petrovitz (1962: 106). Unfortunately the scarce material at my disposal does not allow me to establish without hesitation the subspecific status and distributional areas of these forms of this extremely polymorphic species.

It may also be that the study of larger material allows to conclude that the complex *globulus/immarginatus* should be considered solely a polymorphic superspecies with many subspecific forms.

I could not trace the type of *Aphodius globulus* var. *perpunctatus* Paulian (1934: 110) described from Hoa-Binh (Tonkin) and so I cannot establish its systematic position.

From examining topotypical specimens of *Aphodius auriculatus* A. Schmidt (1908: 53) it is possible to state that it must be excluded from *Loboparius*. As a matter of fact, notwithstanding that the form of the clypeus could suggest it to be a *Loboparius*, the scutellum with parallel sides on the basal part could suggest it to be a *Calamosternus*. Elytral striae terminating free apically could qualify *Aphodius auriculatus* as pertaining to *Pharaphodius* but the habitus is that of a *Bodilus*. Neither the structure of the aedeagus nor epipharynx helps, at present, to solve the question, and suggests the maintenance of this species in an uncertain subgeneric position as stated by its describer.

I studied also the holotype of *Aphodius tilgranicus* Nakane (1966: 232) ascribed doubtfully to *Loboparius*, and I ascertained that it does not belong to this subgenus.

Aphodius (Loboparius) liesenfeldti Petrovitz (1958) was transferred

to *Bodilus* by its own describer (1976) who moreover states that it is probably identical with *Aphodius (Bodilus) pakistanicus* Balthasar (1961).

MIWA described (1930: 174) from Kotosho (Taiwan), *Aphodius kotoensis* but this species was forgotten by all successive authors dealing with *Aphodiinae*, except NAKANE (1973: 49) who placed it in *Loboparius*. I cannot trace where MIWA's type material is preserved and thus *Aphodius kotoensis* remains, at present, a «*species inquirenda*». However on the basis of description and habitus figure I suspect that it may be identical with *Aphodius semiglobulus* Petrovitz (1962) from Luzon.

Subgenus **Loboparius** A. Schmidt

1913. *Aphodius* sbg. *Loboparius* A. Schmidt, Archiv. Naturg. 79 A 11: 123.

Species parvae, breves, valde convexae, glabrae vel pubescentes. Nigrae vel piceo-nigrae, elytris sat pallidis. Genis prominulis, valde auriculatis; pronoto profunde et confertim dupliciter punctato; scutello triangulari, apice acuto; metatibiis setis apicalibus longitudine aequalibus.

Species typus: *Aphodius globulus* Harold, 1859
(subsequent selection, PAULIAN 1942: 52).

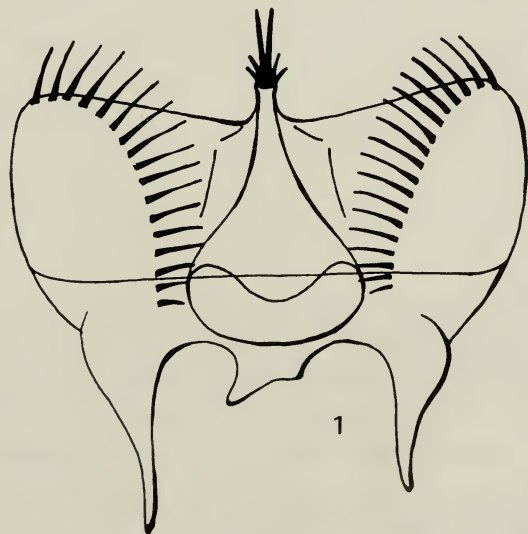


Fig. 1 - Epipharynx of *Loboparius*, generalized scheme.

Head convex, more or less coarsely and thickly punctured; clypeus sinuate at middle, subdenticulate or angulose or rounded at sides, sometimes bisinuately angulate laterally; frontal suture rather obsolete, sometimes with transverse gibbosities or with one median conical tubercle; genae usually auriculate, rarely aligned to the clypeal margin, generally more protruding than eyes. Pronotum usually glabrous, exceptionally with short pale setae; generally with thick, strong and double puncturation; strongly convex and strongly bordered at sides; base bordered or not and with a belt of coarse punctures. Scutellum small, triangular, elongate, apically acuminate. Elytra strongly convex, frequently globous; glabrous or more or less clothed with short and pale setae; striae usually large and deep, feebly crenulate; interstices generally more or less distinctly convex. Metatibiae fimbriate with short and equal spinules and with two apical spurs rather of the same length. Sexual secondary characters few distinct: the male has the tubercles of frontal suture relatively more strong, the fore-tibial spur shorter and broader, the pronotum a little few convex and anteriorly not narrowed. Aedeagus very small, with tegmen strongly sclerosed, paramera moderately elongate, frequently rounded apically. Epipharynx (generalized scheme fig. 1) with enough rounded sides; tylus slender and strongly protruding beyond front margin; epitorma very distinct and guttiform; chaetopodia with thick prophobae in which are mixed few elongate spinules enough regularly arranged; chaetopariae formed by elongate and strong spinae; apophobae usually distinct. The colour of species is black or brownish-black, frequently with paler elytra, sometimes these are reddish more rarely yellowish. The size of species is usually enough small: 4-5 mm.

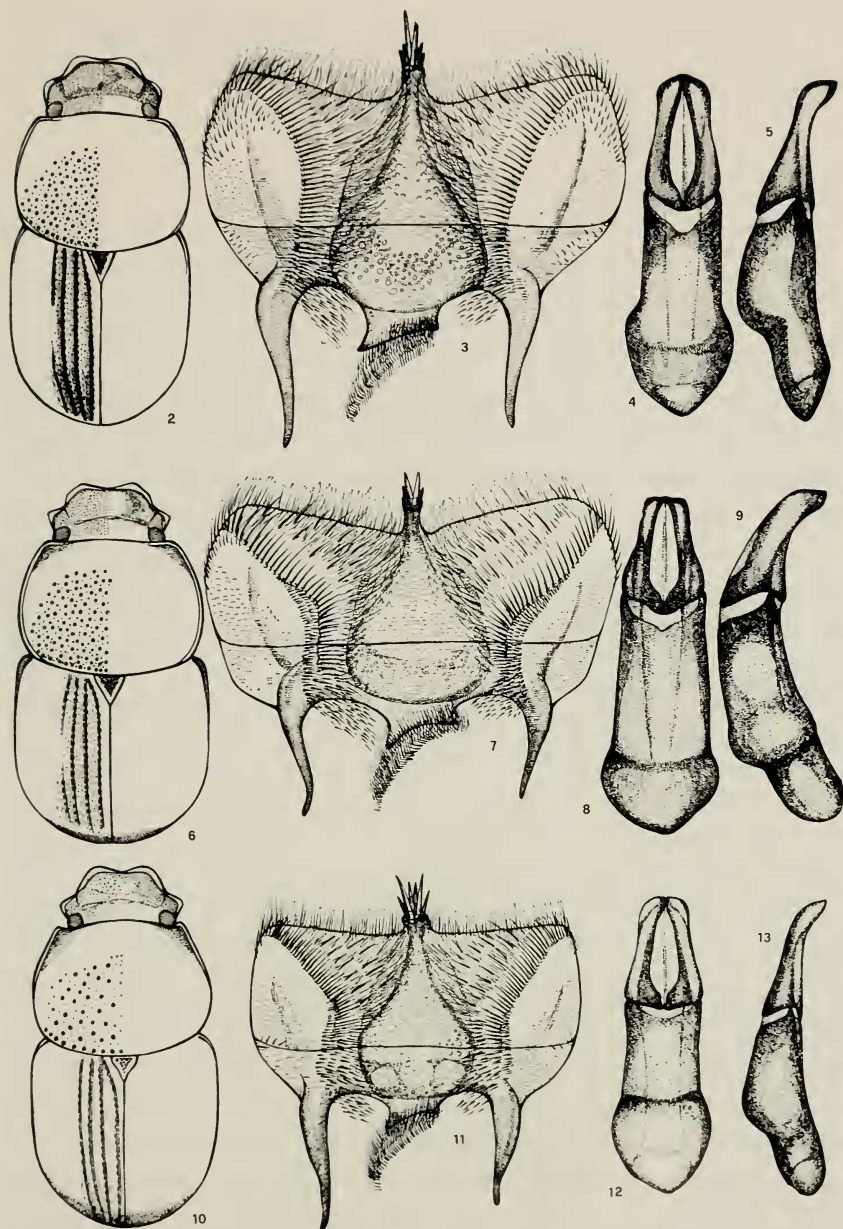
Coprophagous species, more or less widely spread in oriental region and in oriental subregions of the palaearctic region.

Key to species

1. Pronotum and elytra uniformly clothed with short pale setae. Clypeus strongly sinuate at middle, subauriculate at sides. Frontal suture with median tubercle prominent and conical. Scutellum triangular and pointed. Short, broad, very convex, dull. Blackish. Length 5 mm. Laos *punctatissimus* Bouc.
- 1'. Pronotum glabrous; elytra with more or less widely spaced pubescence or completely glabrous 2
2. Clypeus on each side with two distinct denticles 3
- 2'. Clypeus not bidenticulate at sides 4

3. Clypeus obtusely angulate at each side of middle sinuosity. Head large, finely punctate. Pronotum with thick puncturation and broadly rounded sides. Elytra almost parallel sided. Metatarsal basal joint a little longer than upper spur of tibia as well as the next two segments together. Short and broad. Black, elytra brownish. Length 4 mm. Philippines *semiglobulus* Petr.
- 3'. Clypeus subdenticulate at sides of middle sinuosity. Head relatively small, strongly punctate. Pronotum with coarse puncturation, sinuate at sides before hind angles. Elytra broadly rounded at sides. Metatarsal basal joint shorter than upper spur of tibia and subequal in length to the next two segments together. Exceptionally short and broad. Black, elytra brownish. Length 3 mm. India *nathani* Johnson
4. Genae large and more strongly protruding than eyes. Clypeus feebly sinuate at middle, rounded at sides. Frontal suture with three transverse gibbositities. Large, elongate, quite shining, glabrous. Black. Length 6 mm. China, Tonkin, Burma, Nepal *mirificus* Balth.
- 4'. Genae not so large and protruding 5
5. Scutellum very narrow, elongate, pointed, bordered at sides. Head very small; genae almost regularly aligned with clypeal lateral margin. Base of pronotum bordered. Elytral striae deep and broad. Metatarsal joints short and inflated (fig. 33). Elongate, very convex, shining. Brownish. Length 4 mm. Male unknown. Burma *joannae* n. sp.
- 5'. Scutellum almost regularly triangular, not so narrow and elongate 6
6. Elytral interstices impunctate and flat. Pronotum with quite scattered puncturation particularly on disc. Short, convex, very shining. Head and pronotum black, elytra pale yellow-brown. Length 4 mm. Tonkin *chopardi* (Paul.)
- 6'. Elytral interstices distinctly punctate and more or less convex 7
7. Elytra completely glabrous. Clypeus on each side distinctly angulate and with evident marginal border. Genae pointed, not auriculate. Frontal suture with distinct median tubercle. Short, very convex, shining. Black. Length 4 mm. India. . . *schერი* Petr.

- 7'. Elytra near apex more or less widely clothed with short pale setae 8
8. Base of pronotum strongly bordered. Head almost uniformly coarsely punctate. Elytral striae deep and broad; interstices hardly convex with few short preapical pale setae. Clypeus feebly sinuate at middle, rounded on each side. Genae obtusely rounded, auriculate. Short, convex, shining. Black with brownish elytra. Length 5 mm. Afghanistan, Pakistan *scheibei* Balth.
- 8'. Base of pronotum not bordered or with border largely interrupted at middle. Head rather finely punctate 9
9. Clypeus broadly and distinctly sinuate at middle, angulate on each side. Genae obtusely angulate, more strongly protruding than eyes. Epistome with evident gibbosity. Frontal suture distinct, feebly tuberculate. Elytral striae feebly impressed, apically faint; interstices rather flat. Short and broad, rather shining. Blackish. Length 4 mm. China, Tonkin, Laos, Burma, Nepal, India
 (*crassulus* Fairm; *vitalisi* Bouc.) *immarginatus* A. Schm.
 ssp. (?) *kumaoensis* Petr.: dull, strongly microreticulate on elytral interstices. Kansrao, Dehra-Duhn, Nepal.
 ssp. (?) *cordieri* Bouc.: relatively smaller. Elytra reddish-brown with interstices more densely punctate. Length 3 mm. Tonkin, China, Nepal.
 ssp. (?) *malabaricus* Petr.: same size and colour as *cordieri*. Pronotum with coarser puncturation particularly next to its basal margin where a series of conspicuous points is arranged in a way to simulate a sort of edge. Metatarsal joints short and inflated. Elytral interstices with strong reticulate microsculpture, hence rather dull. Length 3 mm. Malabar (India).
- 9'. Clypeus hardly sinuate at middle, broadly rounded at each side. Genae nearly indistinct, rounded and hardly trespassing on ocular edge. Epistome with a feeble gibbosity. Frontal suture obsolete. Elytral striae rather deep, particularly near apex, interstices convex. Elongate, convex, almost dull. Brownish. Length 4 mm. China *globulus* Har.
 ab. (?) *bisectus* Waterh.: elytra very dull, blackish; size larger. Japan.



Habitus, epipharynx and aedeagus of:

Figs. 2-5: *Aphodius globulus* Har. (Hong-Kong). - Figs. 6-9: *Aphodius immarginatus* A. Schm. (Haut Tonkin) - Figs. 10-13: *Aphodius chopardi* (Paul.) (Hoa-Binh, Tonkin).

- ab. *mantschouricus* (Reiche i. litt.) nov.: elytra blackish. Northern China.
ab. *flavidulus* nov.: elytra yellow-brown. China.

***Aphodius chopardi* (Paul.) (Figs.: 10-13)**

1945. *Loboparius chopardi* Paulian, Faune Emp. Fr., 3 Scar. Indoc.: 157.

Locus typicus: Hoa-Binh (Tonkin)

Brevis, convexus, nitidissimus; capite pronotoque nigris, elytris laete flavo-brunneis. Clypeo leviter sinuato, lateribus rotundato. Pronoto sparse dupliciter punctato. Elytris interstitiis planis haud punctatis et ad apicem subpilosulosis.

Head convex, shining, anteriorly with fine and rather scattered puncturation, more thick at sides and on epistome; clypeus feebly sinuate at middle and largely rounded at sides; completely distinctly bordered, the border upturned; epistome feebly gibbous; genal suture distinct; genae obtusely angulate, more protruding than eyes and with short and sparse bristles; frontal suture almost obsolete only a little risen at middle and at sides. Pronotum convex, very shining, with double puncturation, the large punctures, sparsely arranged, mixed with very small ones; sides strongly bordered, shortly and sparsely bristled; hind angles obtusely rounded; base not bordered but with a belt of coarse punctures. Scutellum triangular, acute, feebly concave centrally, densely punctured at base. Elytra convex, shining; striae strongly impressed, distinctly punctured, very feebly crenulate; interstices flat, rather completely smooth, with some very small punctures irregularly arranged along margins only, with short pale setae spread apically. First segment of metatarsi longer than upper spur of the tibia and a few longer than the following two segments together. Male: puncturation of pronotum on disc relatively more sparse and superficial; foretibial spur more short and broad. Female: puncturation of pronotum thicker and coarser; fore-tibial spur longer and more slight. Colour of head, pronotum and scutellum black; elytra pale yellowish. Length 4 mm.

The species seems to be more or less widely spread in Indochina.

Confirmed distribution ⁽¹⁾:

Tonkin: Hoa-Binh (PM: *typus*); Rive Noire (BM).

Aphodius globulus Har. (figs.: 2-5)

1859. *Aphodius globulus* Harold, Berl. Ent. Zeits., 3: 207.

Locus typicus: China (lectotypus: Hong-Kong).

Brevis, valde convexus, quasi opacus. Niger, pronoto lateribus elytrisque rufescentibus, striis infuscatis. Capite mutico, clypeo fere truncato utrinque rotundato; genis haud prominulis valde rotundatis. Scutello triangulari. Elytris interstitiis plus minusve convexus, punctulatis, ad apicem pilosulosis.

Head feebly convex, opaque, with rather confuse and fine puncturation, distinctly microreticulate; clypeus hardly sinuate at middle, largely rounded at sides, completely bordered; genae large, distinct, rounded, bristled, not or rather not more protruding than eyes; epistome feebly gibbose; frontal suture mutica, rather obsolete, signed by an impunctured line only. Pronotum strongly convex, enough elongate, with double puncturation enough regularly arranged; alutaceous; sides bordered, with long and sparse bristles; hind angles rounded; base with a more or less coarse punctures belt arranged in a way to simulate a sorte of large edge. Elytra short, convex; epipleura narrowly cariniform at shoulder; striae not very deep, distinctly punctured and crenulate; interstices more or less convex, sparsely, irregularly punctured, alutaceous and with few short pale setae apically spread. First segment of metatarsi much longer than superior apical spur of tibia and subequal to the following three segments together. Male: fore-tibial spur relatively shorter and broader; frontal suture more distinct; pronotum with less thick puncturation. Female: fore-tibial spur slender and acuminate; frontal suture obsolete; pronotum with puncturation more thick. Length 4-5 mm.

The species seems to be widely spread in south-eastern Asian region.

(1) The geographical names have not been modernized but are cited from the locality labels. Legenda: BM, British Museum; DG, Dellacasa coll.; ISEZ, Inst. Syst. Exp. Zool. Cracow; MBO, Bonn Museum; MG, Genoa Museum; MGE, Geneva Museum; MM, Manchester Museum; MU, Munich Museum; NK, Nakane coll.

Colour variations:

forma typica: completely brownish.

mantschouricus (Reiche i. litt.) ab. nov.: elytra blackish.
Northern China.

bisectus Waterh. (ab. ?): elytra very dull, blackish; size larger. Japan.

flavidulus ab. nov.: elytra yellow-brown. China.

Confirmed distribution:

Hong-Kong: (lectotypus: MU; MM, BM).

China: Tat-sien-lu (MGE); Foochow (MGE, BM); Kiautschau (MGE);
Kin-fu-shan (BM); Chine (no precise locality: *mantschouricus*
Reiche i. litt.; BM).

Japan: no precise locality (*bisectus* Wat., typus, BM).

Aphodius immarginatus A. Schm. (figs.: 6-9)

1893. *Ammoecius crassulus* Fairmare, Ann. Soc. ent. Belg. 37: 305.

1907. *Aphodius* (*Ammoecius*) *immarginatus* A. Schmidt (nomen novum), Deut. Ent. Zeit: 201.

1921. *Aphodius* (*Loboparius*) *vitalisi* Boucomont in: Boucomont & Gillet, Faune ent. Ind. Franç., Scarab.: 62.

Locus typicus: Haut-Tonkin.

Brevis, valde convexus, modice nitidus. Niger. Capite subtiliter punctato; clypeo leviter medio sinuato; genis obtuse angulosis, valde prominulis; sutura frontali leviter tuberculata. Scutello triangulari. Elytris sat fortiter striatis; interstitiis fere planis, ad apicem pilosulosis.

Head convex, moderately shining, with fine, anteriorly rather confuse, puncturation; clypeus feebly sinuate at middle, rounded at sides, with no border; genae obtusely angulate, auriculate, more protruding than eyes and with long and sparse bristles; epistome gibbose; frontal suture feebly tuberculate. Pronotum convex, strongly broadened, shining, superficially microreticulate, coarsely punctured, the double puncturation with large punctures rather regularly arranged; sides largely rounded, bordered, longely and sparsely bristled; hind angles obtuse; base with no border. Scutellum triangular, acuminate, centrally slightly engraved and with few superficial punctures. Elytra convex,

short, subparallel at sides; epipleura cariniform at shoulder; striae broad, not very deep, superficially punctured and feebly crenulate; interstices rather flat, finely alutaceous, with distinct rather regularly arranged along margins puncturation, apically with short diffuse pale setae. First segment of metatarsi distinctly longer than superior spur of tibia as well as the following two segments together (fig. 32). Male: frontal suture distinctly subtrituberculate. Female: frontal suture with rather obsolete tubercles. Colour blackish, elitra brownish. Length 4 mm.

The species, *sensu lato*, seems to be widely spread in oriental region and in oriental provinces of palaeartic region.

ssp. (?) **kumaoensis** Petr.: dull, with elytral interstices strongly microreticulate. Kansrao, Dehra-Duhn, Nepal.

ssp. (?) **cordieri** Bouc.: relatively smaller (3 mm); elytra brown-reddish with interstices more thickly punctured. Tonkin, Laos, Burma, India, Nepal.

ssp. (?) **malabaricus** Petr. (*minimus* Reiche i. litt., nec *Aphodius* (sbg.?) *minimus* Paul., 1934, *nomen nudum*): same size and colour of *cordieri*, but pronotum with more coarse puncturation, at base with a punctures belt arranged in a way to simulate a sort of edge; interstices dull and strongly microreticulate. India.

Confirmed distribution:

immarginatus A. Schmidt:

Laos: Ban-Ban (BM); Luang Prabang, Ban-Thao-Phan (MM).

Tonkin: Le Kep (*vitalisi* Bouc.: *typus*), Hanoi, Hoa Binh, Than Moi, Dap Cau, Hadong, Haut Tonkin (no precise locality; *crassulus* Fairm.: *holotypus* ♂) (PM).

Nepal: Ghasa Palpa (NK); Teksar, Khudi, Baundara, Talbeshi, Dentam, Panayan-tse (DG).

Sikkim: Gyalzing, Choka, Reshi (ISEZ).

cordieri Bouc.:

Laos: Ban Na Mon (*typus*: PM; MU, BM); Luang Prabang (BM, MM).

Burma: Carin Asciiuii Chebà, Carin Asciiuii Ghècù (MG).

India: Khurda by Mow (*syntypus*: PM); Pedong, Darjeling (BM, MM).

Nepal: Teksar, Khudi (DG).

malabaricus Petr.:

India: Mahé (typus ♂: MGE); Nilgiri Hills (BM, DG, MM); Karachi (*minimus* Reiche, i. litt.; BM).

kumaoensis Petr.:

Nepal: Kansrao, Dehra-Duhn (paratypi ♂, ♀; MGE)

Aphodius joannae sp. nov. (figs.: 30-31)

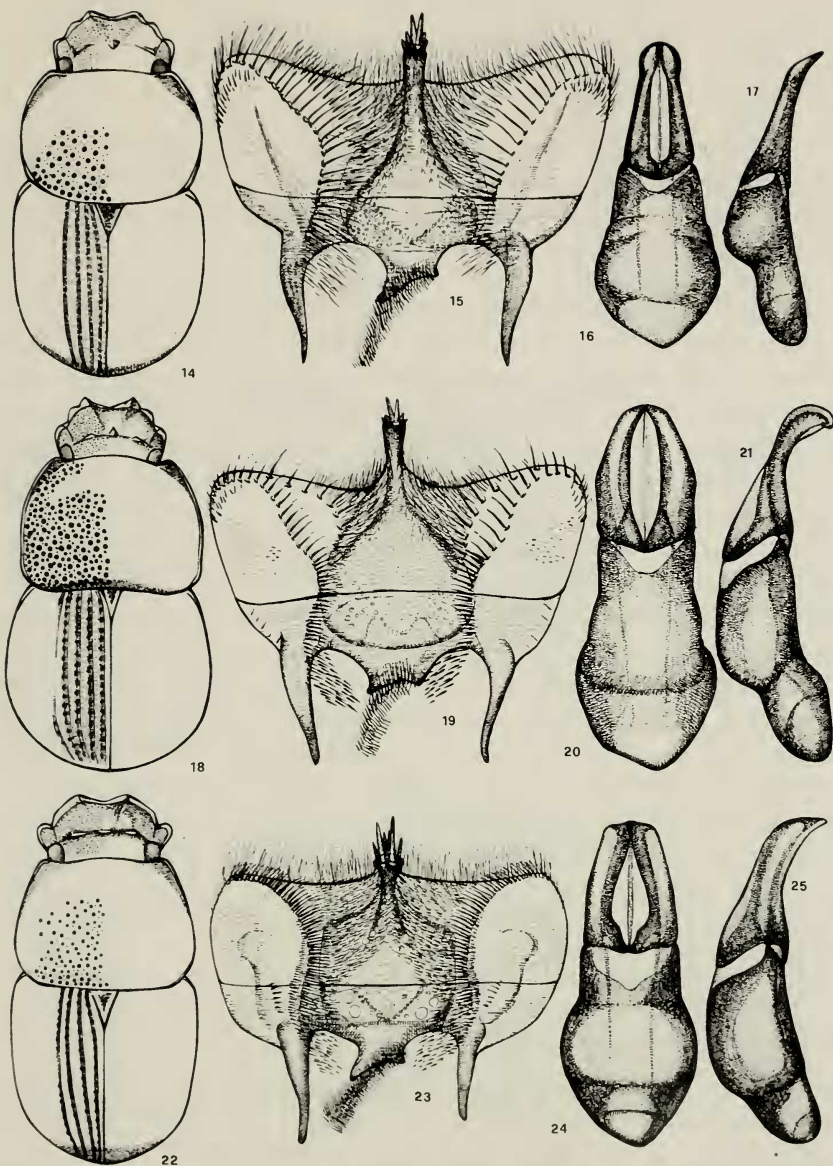
Locus typicus: Carin Asciiui Chebà (Burma).

Derivatio nominis: named in honour of Dr. Gianna Arbocco, curator at Museo Civico di Storia Naturale « G. Doria » in Genoa.

Brevis, convexus, nitidus, glaber. Brunnescens, capite pronotoque infuscatis. Scutello angustato, valde elongato et apice acuminato. Elytris striis fortiter impressis. Metatarsi articulis distincte globulosis.

Head moderately convex, not very shining, strongly microreticulate, anteriorly with coarse and shallow puncturation, more coarse and thicker on frons; clypeus feebly sinuate at middle, rounded at sides, somewhat upturned but with no marginal border; genae bristled, rounded, slightly more protruding than eyes; epistome feebly gibbose; genal suture distinct; frontal line with a median tubercle, the lateral ones weak and transverse. Pronotum strongly convex, very shining, without microreticulation, with double puncturation, the larger punctures very deep and moderately thick, mixed with rather scattered small punctures; sides distinctly bordered and bristled; hind angles largely rounded; base much distinctly and strongly bordered, the border marked by a belt of coarse punctures. Scutellum strongly lengthened, narrow, acuminate, feebly concave at center, finely microreticulate and with shallow large punctures. Elytra convex, rather elongate, shining; striae broad and deep, feebly crenulate, with distinct punctures; interstices convex, shining, finely microreticulate, every one with two belts of fine submarginal punctures irregularly scattered apically, and here with few pale short setae. First segment of metatarsi relatively short and globous, longer than superior spur of tibia, shorter than the following two segments together (fig. 33). Male: unknown. Colour blackish, elytra dark reddish-brown. Length 4 mm.

Holotypus ♀: Carin Asciiui Chebà (Burma), 1200-1300 m, XII.1887, L. Fea, Genoa Museum collection.



Habitus, epipharynx and aedeagus of:

Figs. 14-17: *Aphodius semiglobulus* Petr. (Butac, Luzon; Philip.) - Figs. 18-21: *Aphodius nathani* Johnson (Anamalai Hills, Cinchona; India) - Figs. 22-25: *Aphodius mirificus* Balth. (Carin, Asciiui Ghecù; Burma).

Aphodius mirificus Balth. (figs.: 22-25)

1933. *Aphodius (Loboparius) mirificus* Balthasar, Ent. Nachricht. 7: 57.

Locus typicus: Yunnan-fou (China).

Modice elongatus, valde convexus, nitidus, glaber. Niger, interdum apice elytrorum rufescente. Clypeo antice sinuato, lateribus rotundato; genis auriculatis, valde prominulis, antrorsum directis; fronte carina transversa leviter trigibbosa.

Head convex, shining, with fine and rather scattered puncturation; clypeus distinctly sinuate at middle, rounded at sides, upturned all around; genae strongly auriculate and much more protruding than eyes, shortly and sparsely bristled; epistome feebly gibbose; frontal suture with three weak and cariniform tubercles. Pronotum strongly convex, broad, with double coarse puncturation, the larger punctures almost irregularly scattered, the smaller ones rather imperceptible; sides regularly rounded, bordered, shortly and sparsely bristled; hind angles largely rounded; base with no border but with a belt of coarse punctures. Scutellum triangular, elongate, strongly punctured basally. Elytra strongly convex, glabrous; striae broad, moderately deep, crenulate; interstices convex, much finely and sparsely punctured. First segment of metatarsi longer than upper spur of the tibia and somewhat longer than the following two segments together. Male: fore-tibial spur short and obtusely rounded apically; pronotum broad and regularly convex, with puncturation relatively less coarse and more scattered. Female: fore-tibial spur slightly and regularly acuminate apically; pronotum somewhat narrowed anteriorly, with puncturation relatively more thick and coarse. Colour black, sometimes sides and apex of elytra reddish. Length 5-6 mm.

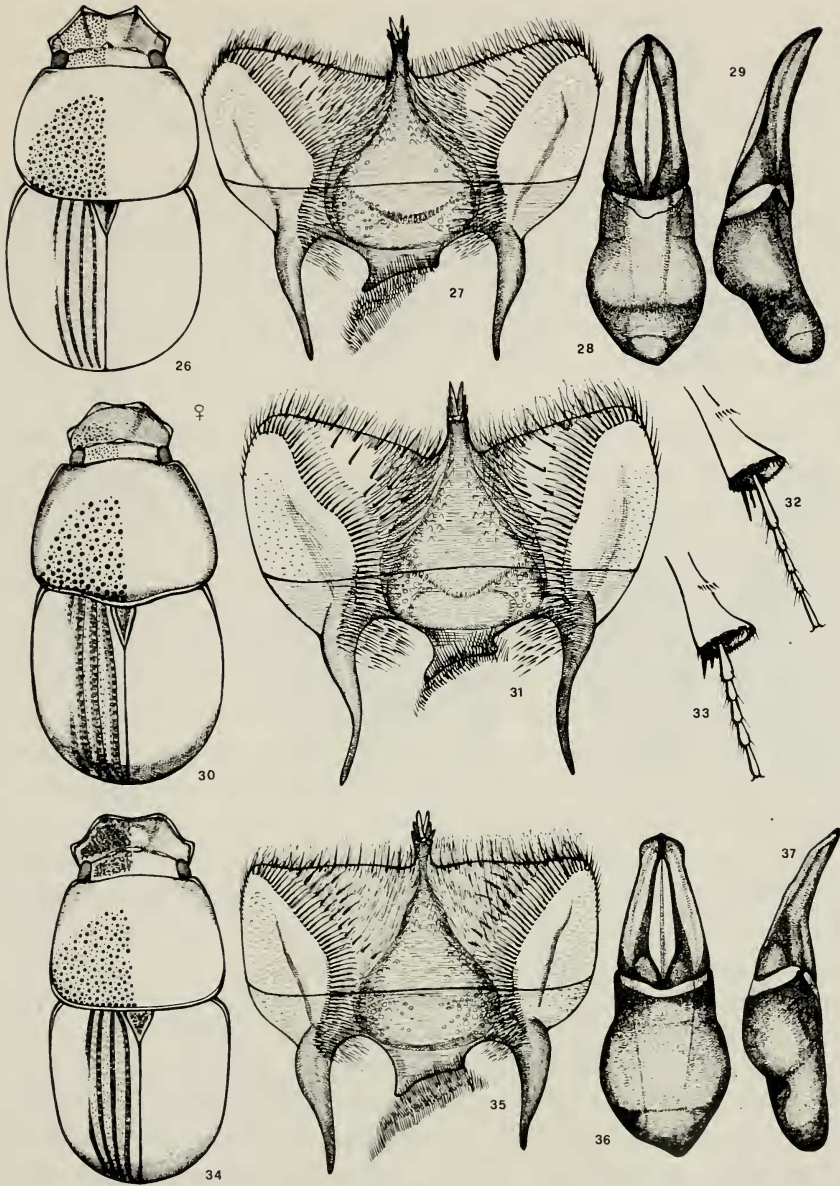
The species occurs in China, Indochina, Burma, India and Sikkim. Confirmed distribution:

Laos: Song Hai, Xieng Khouang (BM); Muong Pek (BM, PM), Ban Na Mon (PM).

Burma: Carin Asciiui Ghecù (MG, MGE).

India: 'Indes Orientis.' (*gravidus* Burm., i. litt.; BM); Katrain: Him. Prad. (ISEZ).

Sikkim: Panayang-tse (DG).



Habitus, epipharynx, aedeagus and morphological structures of:
 Figs. 26-29: *Aphodius schereri* Petr. (Bhim Tal, Naini Tal; India). - Figs. 30-31: *Aphodius joannae* sp. nov. (Carin, Asciiui Chebà; Burma) - Fig. 32: Metatarsus of *Aphodius immarginatus* - Fig. 33 - Metatarsus of *Aphodius joannae* - Figs. 34-37: *Aphodius scheibei* Balth. (BalaKot, Kaghan Valley, Umg. Rawalpindi; West Pakistan).

Aphodius nathani Johnson (figs.: 18-21)

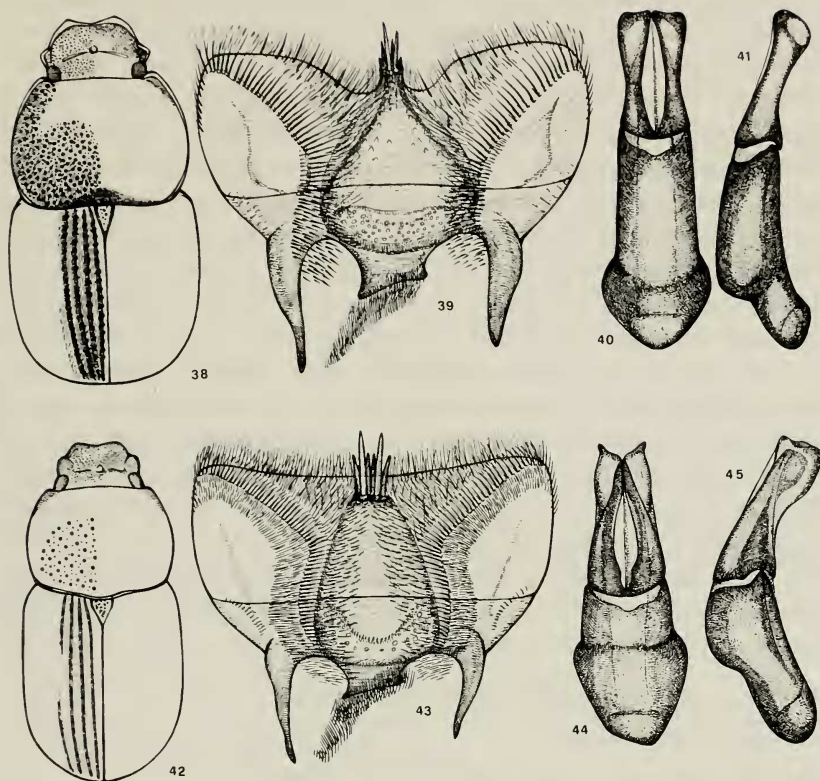
1979. *Aphodius (Loboparius) nathani* Johnson, Ent. Month. Mag. (1978) 114: 53.

Locus typicus: Anamalai Hills, Cinchona (India) (typus: MM).

Singulariter abbreviatus, latus, convexus, parum nitidus, elytris apice pilosulosis. Niger, elytris fusco-ferrugineis, marginibus rufescentibus. Clypeo antice valde sinuato, utrinque subdenticulato; genis rotundatis, prominulis, ex illis ac anticis angulos margine bisinuato. Pronoto dense irregulariter punctato, lateribus postice sinuato; basi depressiusculo. Elytris ab latere valde rotundatis.

Head small, shining, with coarse, thick and regular, anteriorly subrugose, puncturation; clypeus distinctly sinuate at middle, subdenticulate and bisinuate at sides, completely bordered, the border upturned; genae rounded, distinctly more protruding than eyes; epistome feebly gibbose; frontal suture with distinct conical median tubercle, the lateral ones weak. Pronotum shining, glabrous, with coarse puncturation, the punctures are large and irregular; a little depressed at center towards the basal margin, this with a belt of coarse puncture arranged in a way to simulate a large edge; alutaceous; sides and base with few short black bristles: sides strongly bordered, sinuate before hind angles, these obtusely rounded. Scutellum small, triangularly elongate, acuminate and smooth apically. Elytra glabrous, very broad, largely rounded at sides, not very shining; epipleura distinctly cariniform at shoulder; striae large, not very deep, moderately punctured, distinctly crenulate; interstices convex, especially at apex, with distinct puncturation more thick at sides; in the apical third with short pale setae. First segment of metatarsi a little shorter than the superior apical spur of tibia and as long as the following two segments together. Male: median tubercle of frontal suture relatively more distinct; pronotum more broad; fore-tibial spur more short and broad. Female: median tubercle of frontal suture relatively weaker; pronotum narrowed anteriorly; fore-tibial spur slender and acuminate. Colour of head and pronotum black, scutellum and elytra brownish-black, the latter with margin faintly reddish. Length 3,5 mm.

The species is known only from locus typicus.



Habitus, epipharynx and aedeagus of:

Figs. 38-41: *Aphodius punctatissimus* Bouc. (Ban Na Mon, Laos) - Figs. 42-45: *Aphodius auriculatus* A. Schm. (Usambara, Burundi).

Aphodius punctatissimus Bouc. (figs.: 38-41)

1921. *Aphodius (Loboparius) punctatissimus* Boucomont in: Boucomont & Gillet, Faune ent. Ind. Franç., Scarab.: 62.

Locus typicus: Muong You (Laos).

Brevis, valde convexus, parum nitidus. Pronoto elytrisque nigropiceis, pilis flavis erectis brevis vestitis. Clypeo leviter sinuato, lateribus subauriculato. Sutura frontali tuberculo mediano conico valde distincto. Scutello triangulari et acuminato. Interstitiis elytrorum distincte convexis, seriatim dense secundum strias punctatis.

Head convex, not very shining, finely and thickly punctured; clypeus feebly sinuate at middle, rounded at sides, completely bordered, the border upturned; genae rounded, a little more protruding than eyes, shortly and sparsely bristled; epistome feebly gibbose; frontal suture rather imperceptible, trituberculate. Pronotum broad, globous, not very shining, with numerous short pale setae scattered at sides and on basal half, here a little engraved, with very thick double puncturation, the moderately large punctures mixed with smaller but distinct ones; sides regularly rounded, bordered, shortly and sparsely bristled; hind angles obtusely sinuate; base with no border but with a belt of coarse punctures. Scutellum narrowly triangular, acuminate, convex, with few basal punctures. Elytra somewhat dull, strongly convex; striae large, not very deep but distinctly crenulate; interstices strongly convex; the central ones with distinct lateral puncturation, with short and pale setae particularly thick on sides and apically. First segment of metatarsi distinctly longer than superior spur of tibia as well as the following three segments together. Male: median tubercle of frontal suture relatively more risen and acuminate. Female: median tubercle of frontal suture relatively weak and obtuse. Colour of head and pronotum black, their margins reddish; elytra brownish. Length 5 mm.

The species is known only from Laos.

Confirmed distribution:

Laos: Moung You (typus), Ban Na Mon (paratypus) (MP).

Aphodius scheibei Balth. (figs.: 34-37)

1955. *Aphodius (Loboparius) scheibei* Balthasar, Acta Ent. Mus. Nat. Pragae, 30: 419.

Locus typicus: Basghul-Tal (Nuristan)

Brevis, valde convexus, nitidus. Niger, elytris brunneis. Capite regulariter fortiter punctato; clypeo leviter sinuato; genis prominulis, rotundatis, auriculatis. Pronoto basi distincte marginato. Scutello triangulari. Elytris striis latis, distincte impressis, crenulatis, interstitiis leviter convexis ad apicem pilosulosis.

Head convex, shining, with coarse, regular, anteriorly more shallow, puncturation; clypeus feebly sinuate at middle, rounded at sides, with no border but the margin completely upturned; genae obtusely

rounded, strongly more protruding than eyes, auriculate, with long and sparse bristles; epistome feebly gibbose; frontal suture cariniform, a little more risen at center. Pronotum shining, strongly convex, broad, with strong but scattered double puncturation; sides rounded, bordered, lengthly and sparsely bristled; hind angles rounded; base strongly bordered and with a belt of coarse punctures. Scutellum broad, triangular, acuminate, with large punctures. Elytra shining, strongly convex with few short subapical setae; striae large and deep, crenulate; interstices feebly convex, somewhat sparsely but distinctly punctured. First metatarsomere a little longer than superior apical spur of tibia and subequal to the following two segments together. Male: relatively more shining, frontal suture with more distinct tubercles; pronotum with less thick puncturation on disc. Female: relatively less shining; frontal suture with rather faint tubercles; pronotum with more thick puncturation on disc. Colour of head and pronotum black, elytra brownish. Length 4-5 mm.

The species is known from Afghanistan, W. Pakistan and Sikkim.

Confirmed distribution:

Sikkim: Gyalzing, Choka (ISEZ)

Afghanistan: Asmar-Kunartal (paratypus) (MBO)

West Pakistan: Rawalpindi, Kanatti Chak, Salt Range, Bala Kot, Kaghan Valley (MM); Karachi (BM).

Aphodius schereri Petr. (figs. 26-29)

1963. *Aphodius (Loboparius) schereri* Petrovitz, Ent. Arb. Mus. Frey 14: 630.

Locus typicus: Naini Tal, Bhim Tal (Indien).

Brevis, valde convexus, nitidus, glaber. Totus niger. Clypeo antice sinuato utrinque acute anguloso, margine elevato; sutura frontali tuberculo mediano conico distincto; genis acutis, prominulis, haud auriculatis. Scutello triangulari. Elytris interstitiis convexis, sparse sed distincte punctulatis.

Head convex, shining, with coarse, thick, anteriorly subrugose puncturation; clypeus feebly sinuate at middle, angulate at sides, completely bordered, the border upturned; genae more protruding than eyes, angulate, much shortly bristled, rather aligned to clypeal margin; epistome

feebly gibbose; frontal suture distinct and trituberculate. Pronotum shining, strongly convex and broad; with coarse irregular double puncturation, the large punctures of moderate size mixed with distinct smaller ones; sides rounded, bordered, shortly and sparsely bristled; hind angles obtusely rounded; base with no border but with a belt of coarse punctures. Elytra strongly convex, very shining, rounded at shoulder; striae large, crenulate; interstices feebly convex, finely and sparsely but enough distinctly punctured. First metatarsomere a little longer than superior apical spur of tibia and shorter than the following three segments together. Male: central tubercle of frontal suture relatively more risen. Female: median tubercle of frontal suture rather faint. Colour shining black. Length 4 mm.

The species is known from Nepal, India and Pakistan.

Confirmed distribution:

Nepal: Purti-Gat (DG).

India: Dehra Dun: Kemptee Falls, Mussoorie (BM, MGE); Naini Tal, Bhim Tal (paratypus) (MGE).

***Aphodius semiglobulus* Petr. (figs. 14-17)**

1836. *Aphodius sexdentatus* (Eschscholtz, i. litt.) Dejean - *nomen nudum* - Cat. Col. 3 ed.: 160, patria: Ins. Philippin.; nec = *A. globulus* Har. sensu Harold, 1861: 115.

1930. ? *Aphodius kotoensis* Miwa, Ins. Mats. 4: 174.

1962. *Aphodius (Loboparius) semiglobulus* Petrovitz, Ent. Arb. Mus. Frey, 13: 104.

Locus typicus: Butac (Luzon).

Brevis, convexus, nitidus, glaber. Capite pronotoque, hoc ad latera rufescente, nigris; elytris brunneis, striis infuscatis. Clypeo antice fere truncato, lateribus obtuse anguloso; genis valde prominulis, ex illis ac angulos anticos bisinuato. Pronoto parum dense punctato, lateribus valde rotundato. Elytris lateribus parallelis.

Head strongly convex, shining, anteriorly subrugosely, laterally thickly and deeply punctured; clypeus rather truncate anteriorly, angulate at sides, bisinuate besides genae and front angles, with no border but distinctly upturned; genae rounded, more protruding than eyes, shortly bristled; epistome feebly gibbose; frontal suture rather faint, subtrituberculate. Pronotum as long as broad, strongly convex, with

very thick and coarse double puncturation, the larger punctures rather regularly scattered all over, the smaller ones irregularly mixed; sides rounded, bordered, with short and sparse bristles; hind angles obtuse; base with no border but with a belt of coarse punctures. Scutellum small, triangularly lengthened, acuminate apically, slightly concave and with large irregular punctures. Elytra short, strongly convex; with a distinct epipleural carina; striae large, not very deep, crenulate; interstices slightly convex, feebly microreticulate, finely and sparsely punctured. First metatarsomere longer than superior apical spur of tibia and as long as the following three segments together. Male: central tubercle of frontal suture relatively larger and more distinct; fore-tibial spur shorter and broader; lamina metasternali concave. Female: central tubercle of frontal suture relatively weaker; fore-tibial spur more long and slender; lamina metasternali flat. Colour of head and pronotum black; elytra reddish-brown, darker along the striae. Length 4 mm.

The specie is known from Luzon and Panaon Isles in Philippine Archipel.

Confirmed distribution:

Philippine Islands: I. Luzon: Butac (typus); Los Banos (MGE); Mt. Makiling, Benguet (BM). I. Panaon (paratypus) (MGE).

Aphodius auriculatus A. Schm. (figs. 42-45)

1908. *Aphodius auriculatus* A. Schmidt, Soc. ent. 23: 53.

Locus typicus: Usambara.

Parum elongatus, convexus, modice nitidus, glaber. Luteo-testaceus; capite, pronoto, scutello et elytrorum sutura infuscatis. Clypeo sinuato; genis rotundatis, prominulis, subauriculatis. Scutello basi parallelo. Elytris interstitiis ad apicem haud coniunctis.

Head convex, not very shining, alutaceous, finely and not very thickly punctured; clypeus distinctly sinuate at middle, obtusely rounded at sides, with no border but upturned all round; genae rounded, subauriculate, no more protruding than eyes; longely bristled; epistome feebly gibbose; frontal suture trituberculate. Pronotum enough strongly convex, shining, shallowly microreticulate, with thick, irregular, double puncturation; sides rounded, strongly bordered, with long and sparse bristles;

hind angles obtusely rounded; base bisinuate and slightly bordered. Scutellum small, with parallel sides at basal half, finely punctured and microreticulate. Elytra convex, shining, subparallel, no posteriorly broadened; striae shallow, fine, feebly crenulate, broader and larger apically; interstices flat, distinctly, sparsely punctured. First metatarsomere distinctly longer than superior apical spur of tibia and as long as the following three segments together. Male: tubercles of frontal suture relatively stronger; fore-tibial spur flat and obtusely rounded apically; lamina metasternali concave. Female: tubercles of central suture relatively weaker; fore-tibial spur slender and acuminate; lamina metasternali rather flat. Length 4-5 mm.

The species seems to be more or less widely spread in southern Ethiopian region.

Colour variations:

forma typica: reddish-yellow; head, pronotum and elytral suture brownish.

bimaculatopennis A. Schm.: do., but elytra with a discal, more or less large, dark brown spot. Natal.

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RIASSUNTO

L'autore revisiona il sottogenere *Loboparius* sulla base di materiale tipico:

- *Aphodius bisectus* Wat. deve essere quasi certamente considerato variazione cromatica di *A. globulus* Har.;
- *Aphodius vitalisi* Bouc. è sinonimo recente di *immarginatus* A. Schm. (*crassulus* Fairm.) e *Aphodius kumaoensis* Petr., *cordieri* Bouc. (var.), *malabaricus* Petr. sono considerati probabili sottospecie dello stesso;
- *Aphodius auriculatus* A. Schmidt, *tilgranicus* Nak. e *liesenfeldti* Petr. non appartengono al sottogenere *Loboparius*;
- *Aphodius joannae*, n. sp. è descritta di Birmania.

L'autore non ha rintracciato materiale tipico di:

- *Aphodius globulus* var. *perpunctatus* Paul.;
- *Aphodius kotoensis* Miwa;

e pertanto non gli è stato possibile definirne la posizione sistematica. È inoltre ipotizzata la possibilità che con lo studio di più cospicuo materiale il complesso *globulus/immarginatus* debba essere considerato una sola superspecie con numerose forme sottospecifiche.

SUMMARY

The Author revises the subgenus *Loboparius* on the basis of all available typical material:

- *Aphodius bisectus* Wat. almost certainly must be considered as a colour variation of *A. globulus* Har.;
- *Aphodius vitalisi* Bouc. is junior synonym of *immarginatus* A. Schm. (*crassulus* Fairm.) and *Aphodius kumaensis* Petr., *cordieri* Bouc. (var.), *malabaricus* Petr. are eventually considered as subspecies of *immarginatus*;
- *Aphodius auriculatus* A. Schm., *tilgranicus* Nak. and *liesenfeldti* Petr. do not belong to subgenus *Loboparius*;
- *Aphodius joannae* n. sp. is described from Burma.

The Author had not the chance to trace type material of:

- *Aphodius globulus* var. *perpunctatus* Paul.;
- *Aphodius kotoensis* Miwa; and thus it was not possible to place them satisfactory in the system.

Furthermore the opportunity to study more conspicuous material might reveal that the complex *globulus/immarginatus* shall have to be treated as a unique superspecies with several subspecies.
